ABSTRACT OF THE DISCLOSURE

A liquid crystal based polarimetric system, a process for the calibration of this polarimetric system, and a polarimetric measurement process intended for measuring the representative parameters of a sample in which the polarimetric system contains an excitation section emitting a light beam that passes through a polarization state generator (PSG) and onto a sample. After reflection or transmission by the sample, the beam goes through an analysis section with a polarization state detector (PSD). The PSG and PSD each have a first and a second liquid crystal elements LC_j ($j=1,2$) having, for each LC_j element of the PSG (respectively for each LC_j element of the PSD), an extraordinary axis making an angle θ_j (resp. θ'_j) with respect to the polarization direction (i), and a retardation δ_j (resp δ'_j) between its ordinary and extraordinary axes, the liquid crystals LC_j elements being positioned in reverse order in the PSD with respect to the LC_j elements of the PSG.